

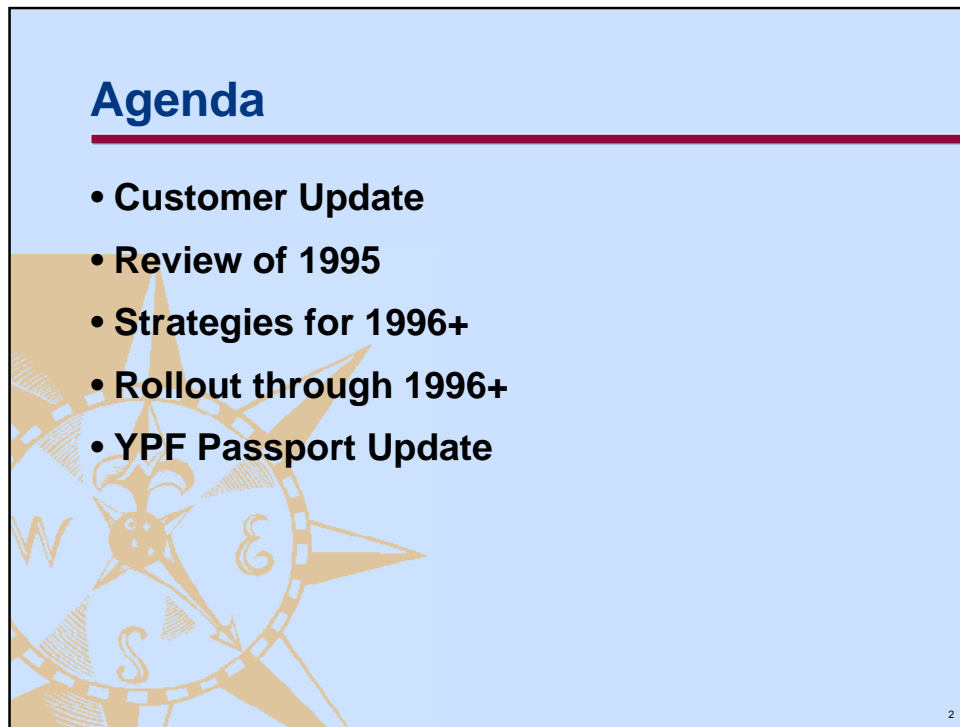


The objectives of the presentation are to:

- provide an overall update on Passport deployment, highlighting the significant progress made since Inform '95. This update will cover the geographic, application and market view of deployment as well as the feature rollout; and
- summarize our rollout *Plan of Record* for the next year, with emphasis on particular features and applications which are representative of the product directions through 1996 and beyond.

**About the presenter:**

David Hudson is a senior product manager for the Passport core product management group and is based in Ottawa. He has been with Nortel for more than eight years. The Passport *Core* includes the overall product architecture and the common, reusable, elements of the design—both hardware and software. Two key areas of focus in Passport core product management are the product rollout and the platform evolution. Previously, David worked in the DMS switching and FiberWorld transmission product groups. He holds Master and Bachelor of Science degrees in Systems Design Engineering from the University of Waterloo.

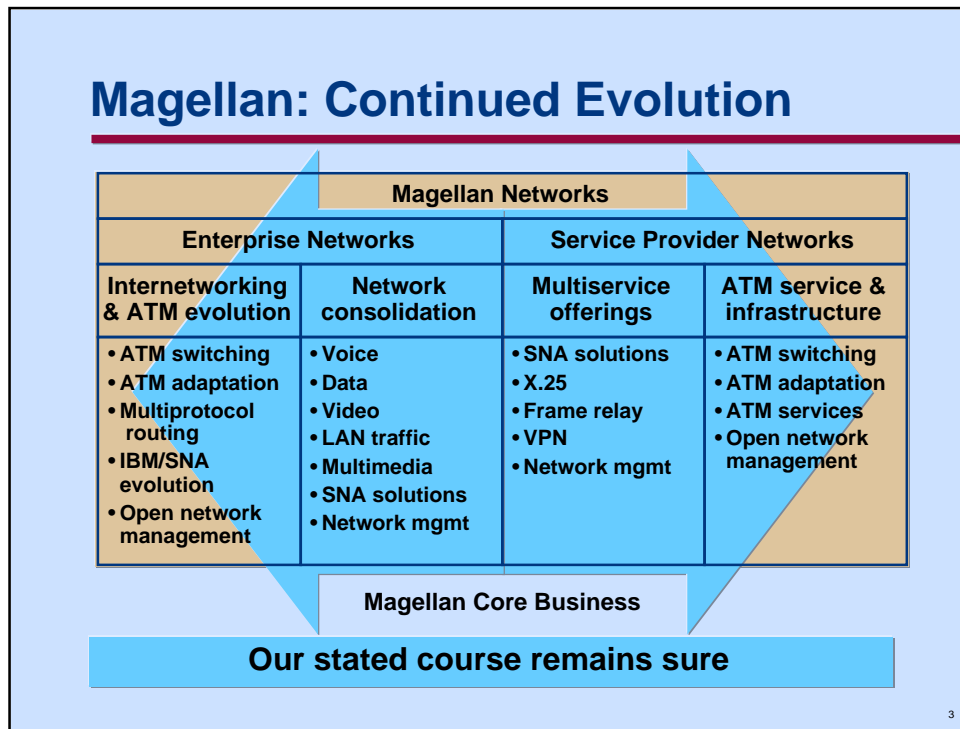


This presentation summarizes Passport's market and feature progress in 1995. From a market or customer perspective, it describes where Magellan has been successful with Passport in terms of the how many systems have been shipped, where they are deployed globally, what applications are in use and the vertical market segments which are using the product. The purpose of this is to demonstrate that our customers are in very good—and growing—company with their Passport investment.

From a feature perspective, this presentation reviews the functionalities which have been delivered since Inform '95 and describes the rollout—and rollout strategy—going forward.

There are two points to make about the feature rollout: 1995 was a very busy year and 1996 will be as busy. Consequently, it is not possible in this update presentation to describe every feature in detail. The presentation does touch on a number of key features, but not all. The notes pages include a description of all of the features which have been delivered and are planned. In addition, there are a number of other Inform '96 presentations which focus in greater detail on specific Passport applications and services.

The final portion of this presentation has been prepared by Francisco Cimmino who is Manager of Networking and Communications at YPF. The collaboration between Nortel Magellan and YPF for deployment of Passport services including voice transport, frame relayswitching, HDLC for X.25 and BTDS for video began in 1994, grew in 1995—and continues. This item will provide a customer perspective within the Passport Update.



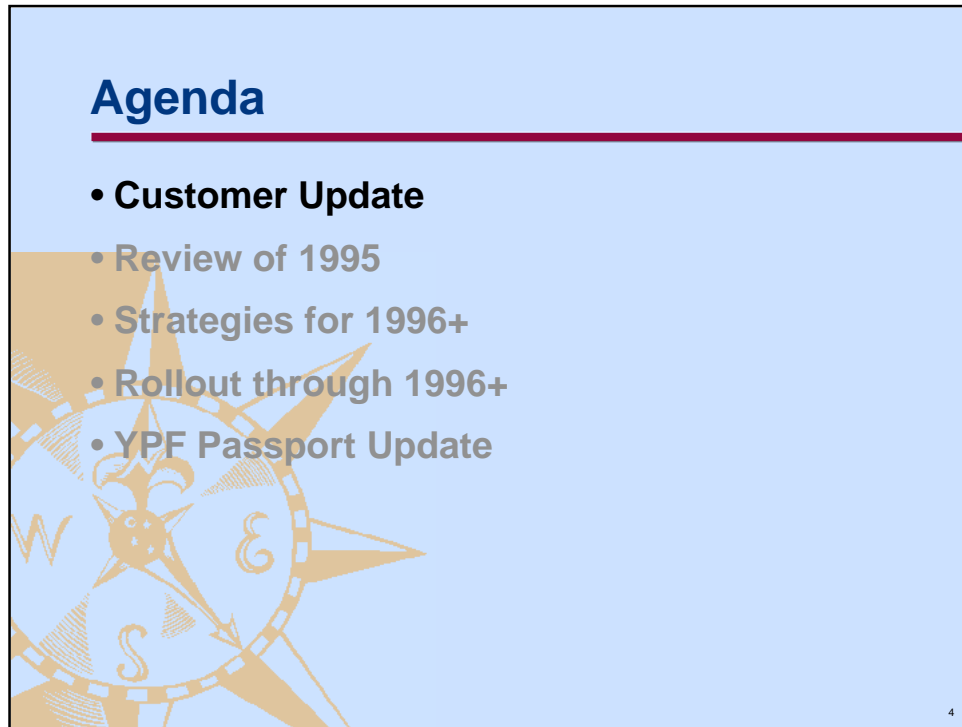
The Magellan group is keeping to the original Passport product plan. To be sure, there is more work ahead and, with that, new opportunities for our customers. The path that we are on, however, is the path that we mapped out.

This chart captures a number of key points concerning the longstanding Magellan business and product strategy. This will be familiar to those who have participated at the last two Inform conferences (1994 and 1995). This describes the “journey” that was planned with Magellan Passport. This journey includes in its objectives, meeting both enterprise and service provider needs; it builds on core competency in a variety of service and multiservice capabilities; and it delivers multimedia network consolidation, as well as a smooth evolution path to both an ATM infrastructure and an ATM service set.

Key steps in the implementation of this vision since last year’s Inform are:

- the rollout of interLAN switching as a key part of the network consolidation thrust; and
- the rollout of Passport ATM in 1995.

The Passport team is very proud of the progress made since last year, particularly with Passport ATM—note that Passport ATM is the first generally available ATM product in Nortel’s total product portfolio.

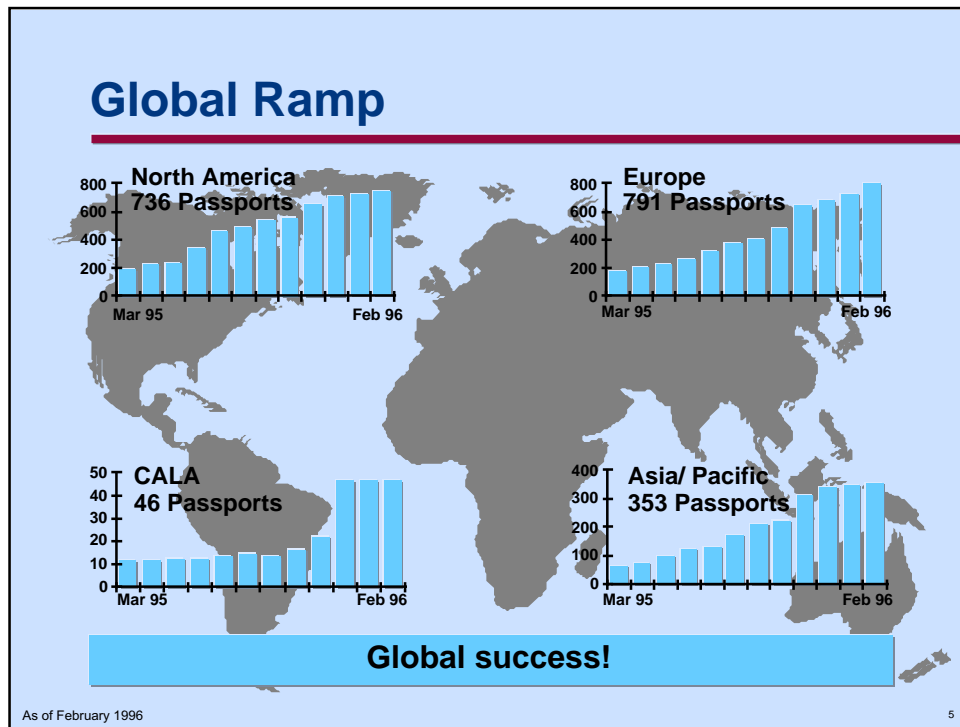


## Agenda

- **Customer Update**
- Review of 1995
- Strategies for 1996+
- Rollout through 1996+
- YPF Passport Update

4

This section summarizes Passport's market and feature progress in 1995. From a market or customer perspective, it describes where Magellan has been successful with Passport in terms of how many systems have been shipped, where they are deployed globally, what applications are in use and the vertical market segments which are using the product. The purpose of this is to demonstrate that our customers are in very good—and growing—company with their Passport investment.



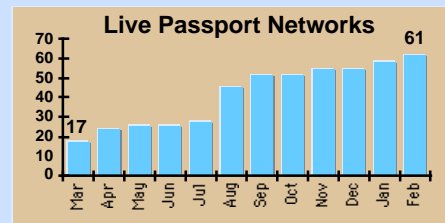
This chart shows one measure of our progress since last year. Passport has an excellent level and distribution of global deployment, with excellent trend lines. On a geographic basis, this progress has been very pleasing and confirms the value of our commitment to build products which meet the various needs of customers around the world—including customers who themselves have international presence. Nortel is a global company. In general, Magellan leads Nortel in its “world trade” growth and success.

Please note that these statistics reflect only units which have been delivered to customers and our distributors for their customers—this number totals over 1900. There are an additional 400 Passports (approximately) in Nortel development labs, training and support centers.

## What is Passport Used For?

- | • Applications         | Number of customers |
|------------------------|---------------------|
| – frame relay UNI      | 73                  |
| – DPN-100 interworking | 59                  |
| – HDLC transport       | 58                  |
| – voice transport      | 51                  |
| – ATM                  | 16                  |
| – interLAN switching   | 7                   |
| – using three or more  | 55                  |

- 61 live networks



As of February 1996

6

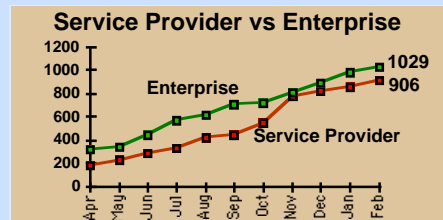
Passport's full range of applications are deployed. This chart summarizes the number of customers who have deployed each of the basic application types. There are 115 Passport customers at this time. There is a fair range in the distribution and this might lead you to conclude that one application is much more popular than another. This may be true at this instant, however, the deployment levels of the feature set tracks fairly closely to the amount of time that the feature has been generally available—frame relay was one of the first capabilities to reach general availability on Passport and it has the highest deployment; interLAN switching became generally available very recently and it has only just begun to see wide deployment.

Passport is in use as a multi-service switch—almost half of our customers use some mix of three or more services. A strong majority of customers use at least two services. Defining Passport as a new class of product—the ATM enterprise network switch—was not easy in a market with a wide array of routers, muxes, packet switches and cell switches. Nonetheless, Passport has succeeded. The press and industry recognition is great, but these statistics are real proof in our eyes that “enterprise network switch” and “bandwidth” or “network consolidation” are much more than just hype.

Also note that the number of live Passport networks also tracks steadily to the pace of total deployment.

## Who Uses Passport?

• Customer groups	Number of customers
– finance/Insurance	16
– distributors	14
– manufacturing	10
– utility/resource	6
– transportation	6
– government	5
– education	3
– service provider/VAN	58



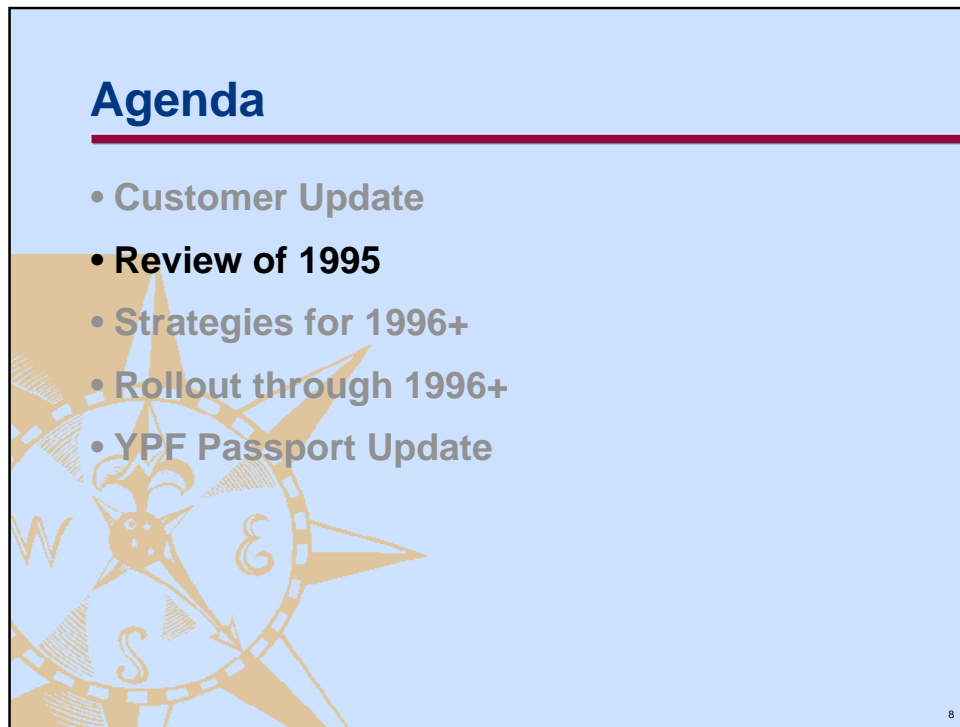
As of February 1996

7

This chart provides a good sense of the type of customers who have deployed Passport from a vertical market point of view. Magellan customers, in general, value performance and reliability, as well as a vendor with whom they can build a relationship. Their networks tend to be mission critical.

The list is not complete. There are also Passport networks in software development organizations, advertising firms, etc. Passport is now a key element of our own internal network and these Passports run the full range of available services—including interLAN switching. One result is that Passport is now part of the network used for Passport software development—this is absolutely mission critical for us!

This data also demonstrates that the strategy to address the common needs of service providers and enterprises with Passport is succeeding. On a customer-by-customer basis, or a Passport-by-Passport basis, there are almost even levels of deployment in private networks and in revenue generating service provider networks.

A slide titled "Agenda" with a light blue background and a large, faint compass rose graphic on the left side. The title "Agenda" is in a dark blue font and is underlined with a thick red line. Below the title is a bulleted list of five items. A small number "8" is visible in the bottom right corner of the slide.

## Agenda

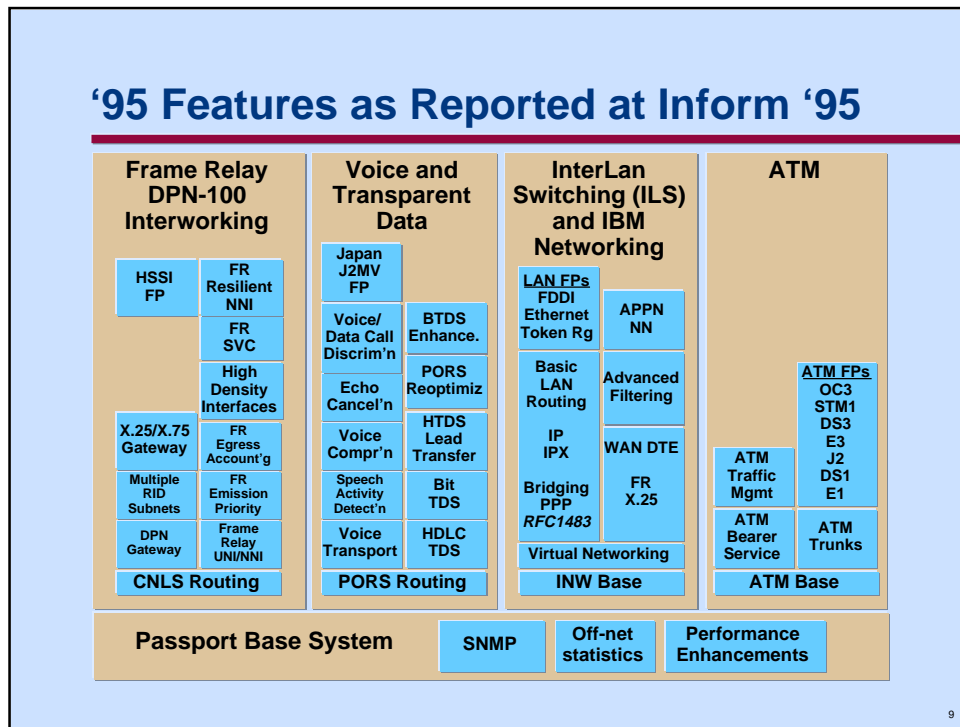
- Customer Update
- **Review of 1995**
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8

This section reviews the features and functionality which have been delivered since Inform '95.

Again, it is not possible in this update presentation to describe every feature in detail. The presentation touches on a number of key features, but not all. The notes pages include a description of all of the features which have been delivered, and are planned. In addition, there are a number of other Inform '96 presentations which focus in greater detail on specific Passport applications and services.





This page was presented last year as a high level summary of planned rollout for 1995. It was clearly recognized at the time that this represented an ambitious list. However, with only one real exception (RFC1483), all the items shown were delivered. Moreover, all of these items were delivered to trials very close to their planned delivery dates. There were some delays very late in the year—this was on the new base development stream. This work was launched last year to allow a number of key base improvements to be made without impacting the ability to dependably deliver new features on the P1 base.

In the notes pages which follow, a brief description of each of the features is provided.

Frame relay service extensions in 1995:

- **Resilient NNI** yields higher-availability for service provider network-to-network connections.
- **High density interfaces** will be extended to include an 8-port DS1 FP.
- **Frame relay SVCs** will enable the growth of applications requiring dynamic any-to-any connectivity.

DPN-100 Interworking extensions:

- **X.25/X.75 gateway** feature allows customers to deploy the X.25/X.75 gateway function on AMs directly attached to Passport nodes. This eliminates the dependency for RMs to be directly attached to AMs running the gateway.

Voice and transparent data services extensions:

- **Voice/data call discrimination** uses common channel signalling (CCS) to dynamically provide optimum parameter settings (eg. speech activity detection and compression level) depending on the type of call being established (voice or data).
- **PORS reoptimization** periodically rebalances the network by examining network bandwidth resources dynamically, and refining the logical connection routing to ensure that the most optimal paths are always being used.
- **HTDS status lead transfer** permits a Passport network to support devices which use hardware handshaking protocols (e.g. fax machines DSR/DTR).
- **J2MV FP** supports PBX-to-Passport interconnection in Japan, according to the TTC-2M specification.
- **Miscellaneous enhancements** associated with BTDS are aimed at reducing network delay and improving bandwidth efficiency.

Passport interLAN switching (ILS) combines industry standards with Magellan values to create unique, cost-effective networking solutions. Passport can operate as a high-performance router in peer multi-vendor environments providing high-fanout and industry-leading aggregate throughput. ILS combined with other Passport applications results in the industry's premiere enterprise network switch.

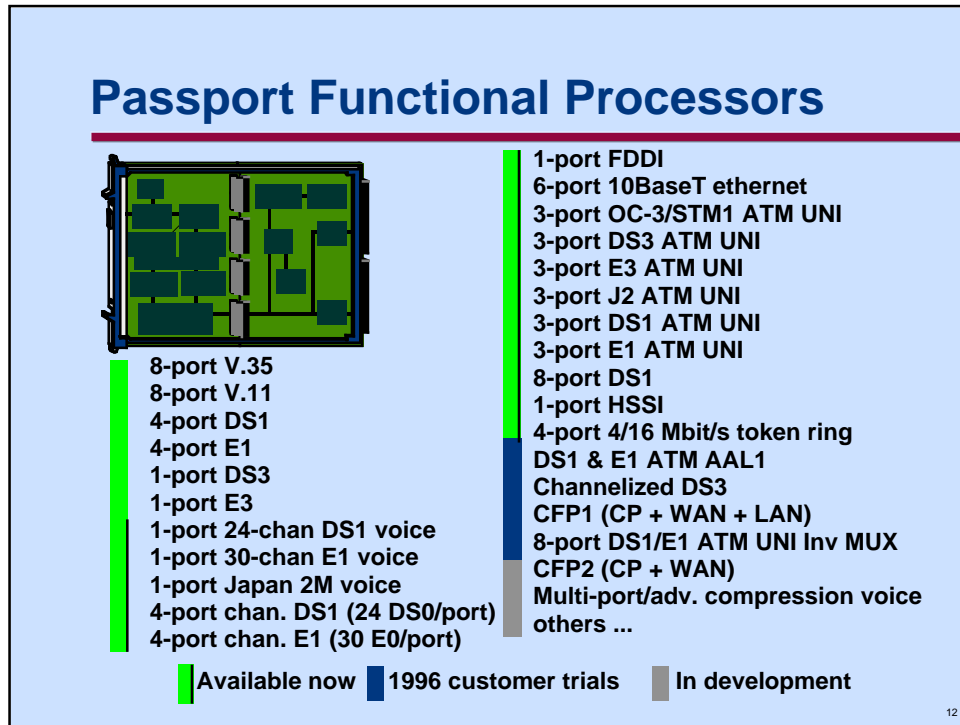
- Industry standard **LAN network and routing protocols** are supported. IP (RIP, OSPF, EGP) and Novell IPX (RIP/SAP) as well as transparent bridging are supported in the initial release on ethernet, and FDDI FPs.
- **Advanced filtering** provides secure firewall capabilities.
- **X.25 DTE, frame relay DTE and PPP** are supported on Passport WAN interfaces (V.35/V.11, DS1/E1). This allows Passport, operating as a router, to connect to public frame relay or X.25 services or over serial lines to third party internetworking devices.

ATM on Passport allows for the evolution of frame-based networking to ATM. The ability to support the carriage of existing services across an ATM backbone and the ability to offer ATM service directly to end-users are supported, making Passport a true multi-service platform in an ATM world.

- **Passport ATM trunks** allow a customer to use ATM to carry Passport services over an ATM network.
- **ATM bearer service** allows a service provider or enterprise customer to offer ATM UNI services on Passport.
- There are a variety of **ATM FPs** supporting speeds ranging from T1/E1 through OC-3/STM-1.
- **ATM traffic management** will support the capabilities defined in industry standards like traffic policing and shaping.

Passport base enhancements:

- **Passport's statistics-gathering** system was augmented through the support of spooling for off-network data storage and analysis. Customers will benefit by improved network operator productivity using techniques which have a minimal impact on network loading.
- **Passport performance** has been enhanced through a program of base software updates and application optimizations in the P3 stream.



In addition to the substantial amount of software in the previous charts, a very large number of hardware products were delivered in 1995—primarily new interface cards. This list is large, even by Nortel standards, and certainly exceeds the capability of many of our competitors:

- Voice - DS1, E1, J2 voice (global PBX interface set)
- Frame relay- DS1 channelized, E1 channelized (high-fanout access), HSSI (high-speed access) and 8-port DS1 (high fanout UNI/NNI)
- ATM - DS1, E1, JT2, DS3, E3, OC3/STM1 ATM (wide range of UNI capability)
- InterLAN switching (ILS) - ethernet, FDDI (high-fanout and performance)
- Platform - Passport model 50 AC and DC redundant power (high availability)

The functional processors which are in development for trial this year or later include:

- Evolution of the voice Function Processor to provide support for advanced compression algorithms (LD-CELP, G.729, .... ) and multi-port capability.
- CFP1 which combines functionality from the current control processor, V.35/V.11 functional processor and ethernet/token ring functional processors onto a single card for applications in smaller network sites. CFP2 is a similar development combining functionality from the control processor and V.35/V.11 functional processor.

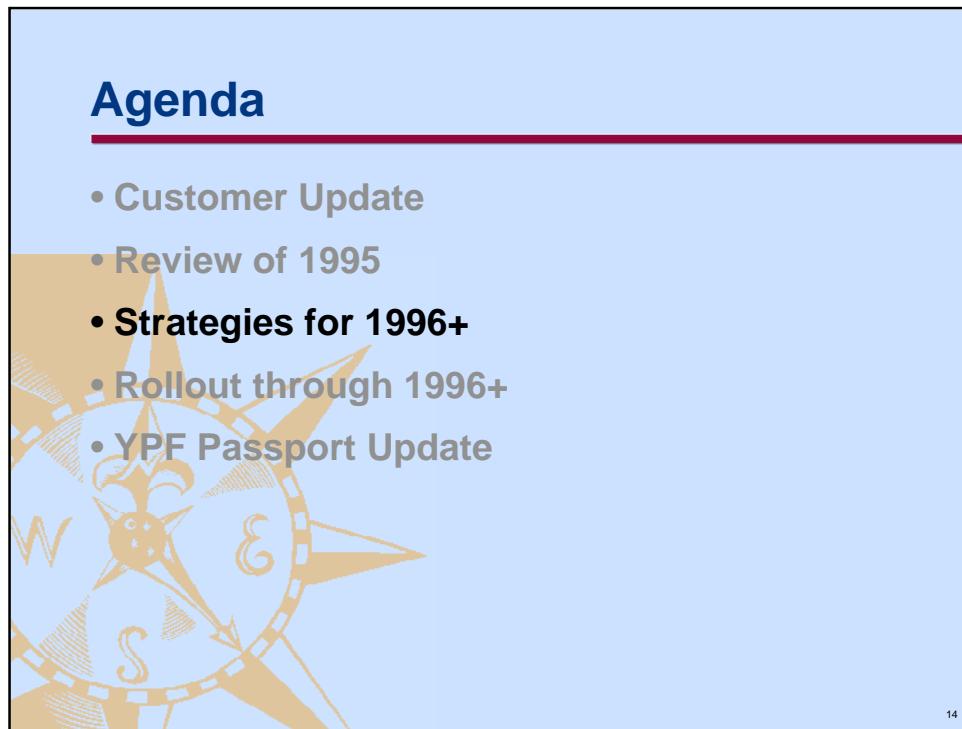


Delivering on the Inform '95 rollout plan means that all of the key functionality of our vision of the ATM enterprise network switch has been delivered.

Passport has a long history as a project and its genesis is rooted in a number of very forward-looking product initiatives dating back to the early 1990's. As of Inform '96, all of the key elements of its 1993 product specification are in place. The only remaining item is in the final stages of testing—complete interworking of all the services.

Passport was in the market entry stage of its life in 1994 and 1995. Our real opportunity as a business in 1996 and 1997 is market expansion by fully leveraging the potential of the product. This will lead to new opportunities in voice, video, ATM and other applications which will stretch well beyond the literal text of the original specification.

The Passport team is very proud of this accomplishment and enthusiastic about the future.

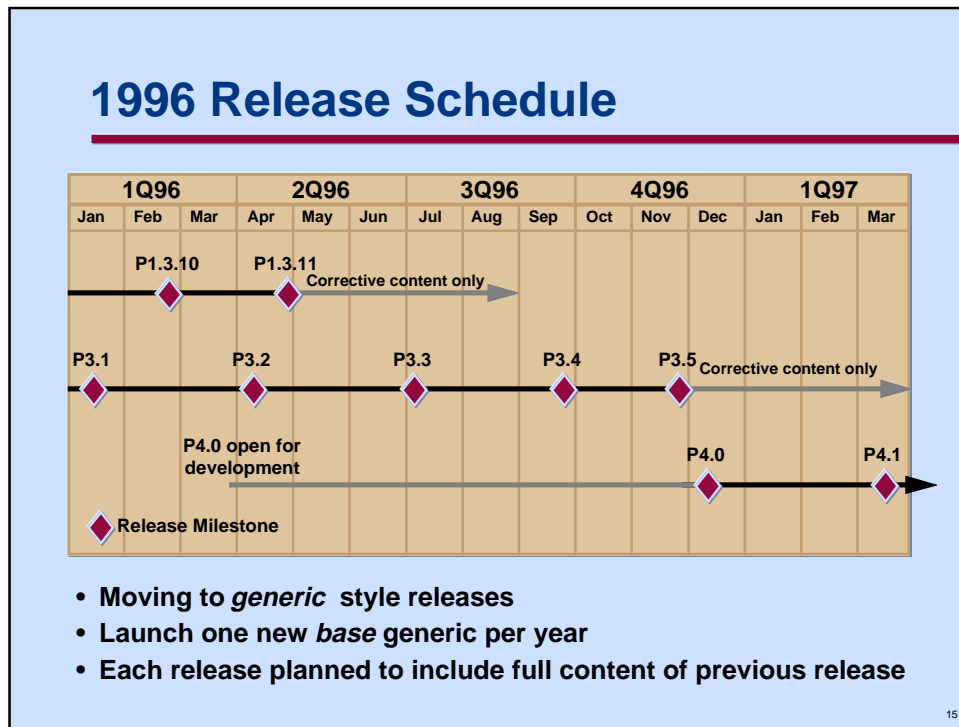


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- Customer Update
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14

This section describes the Passport feature rollout strategy going forward.



This is the release schedule for the balance of this year and the first part of 1997.

With Passport moving from its initial deployment phase in 1995 into full volume and market expansion, the time is right to adjust its feature delivery model. The model in 1995 allowed for aggressive delivery of a large number of new core features; and parallel development and delivery of some key base improvements as well as new features which depended on this base work. Last year's model did provide flexibility to meet a number of demands, but had the result—temporarily—of creating two different feature sets.

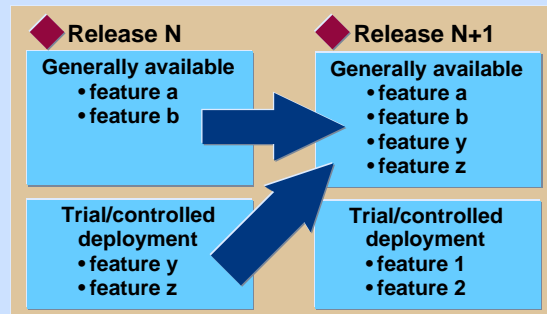
Our first priority for the development team in 1996 has been the complete *merge* of the two feature sets. This has taken more effort than anticipated one year ago. This effort is in large part due to the fact that so much functionality was delivered in 1995, but on the two release environments. Merging the two at high quality is a painstaking exercise. It is very nearly done! P3.3 is well into testing now and will be available this summer, delivering higher performance and full functionality—along with new feature content too.

Feature delivery from this point forward will be done in a more structured fashion. There will be two major software releases per year: one which includes base level changes and optimizations and a second, approximately six months later, which delivers major new feature content. Midway between these, there will be releases with limited, incremental features.

The benefits of having this base work in place are now apparent—application-level implementation of new features is now more independent.

## Release Milestones

- **Releases contain generally available and trial (controlled deployment) content**
  - top quality generally available content
  - trial features become generally available in the next release



16

Our release milestones on Passport will be structured in the following fashion. In general, each software release will include content which is ready for field trial (or controlled deployment) and generally available content.

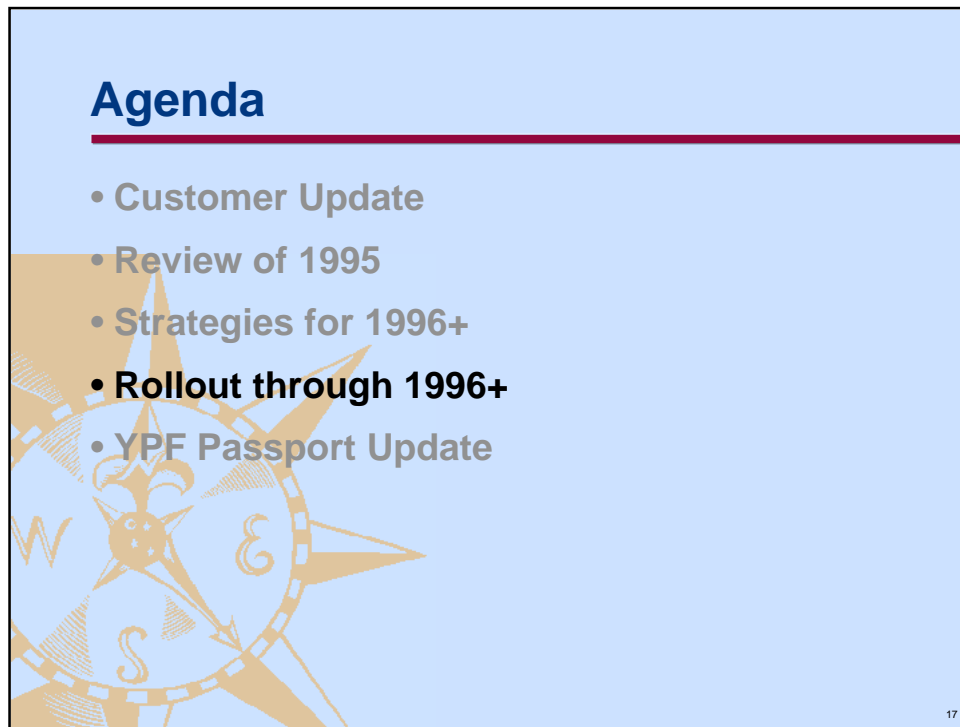
In 1995, some of our software releases followed this model and others did not. This release model, together with the strategy of two major releases plus two supplemental releases per year, will be used now. In the major releases, there may be a fairly long list of new content at a field trial ready level. In the supplemental releases, the list will be fairly short.

As a rule, release content which is in field trial will be promoted to general availability in the next release. Promotion depends on the successful completion of a field trial of the feature in the period between the two release milestones. The generally available content at any given release remains generally available in all subsequent releases, of course.

The ability to deliver field trial-ready features in a release without impairing the quality of the generally available content of that release, depends on two key activities:

- Release planning, which carefully assesses the impact that a new feature may have on existing product functionality; features whose design calls for changes which may have such impact, will be delivered in major releases where there is adequate time to implement and verify the changes long before delivery
- Rigorous regression testing, the purpose of which is to verify that the existing product functionality is not impaired as new features are added; much of this regression capability is automated and executed on a regular basis through the feature development cycle—not just at release points; there is a dedicated lab/network in place to support this regression activity





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17

This section describes the Passport feature rollout throughout the balance of 1996 and into early 1997.

## Early 1996

- **Brought complete P1 stream to general availability**
  - corrective content and minor enhancements only
- **Brought P3.1 to general availability plus, at trial status**
  - token ring/IP
  - SNMP
- **Launched P3 to general availability**
  - new base, new features
  - higher packet throughput through software

**Journey started on P1 - next leg is P3**

18

### P3.2 Release - Content Summary

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Generally available               <ul style="list-style-type: none"> <li>–Frame relay UNI and NNI</li> <li>–Frame relay call server</li> <li>–DS1 voice, BTDS, HTDS</li> <li>–DPN-100 interworking</li> <li>–ILS IP, IPX, OSPF, RIP</li> <li>–ILS Netsentry filtering</li> <li>–ILS bridging</li> <li>–ILS PPP and DTE</li> <li>–Ethernet 10baseT and FDDI sm/mm</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Trial/controlled deployment               <ul style="list-style-type: none"> <li>–Frame relay accounting</li> <li>–E1 and J2 voice</li> <li>–X.25/X.75 gateway</li> <li>–High-speed V.35/V.11</li> <li>–Frame relay SVCs</li> <li>–SNMP enterprise and standard MIBs</li> <li>–ILS IP EGP</li> <li>–ILS token ring IP and IPX</li> <li>–ILS cluster bridging</li> <li>–APPN network node</li> <li>–Statistics</li> </ul> </li> </ul> |
|--|---|

**Mid 1996**

- ◆ **P3.3 release**
  - general availability planned for all content by P3.4 milestone

Generally available	All P1.3.9 & P3.2 features
Trial/controlled deployment	Fax idle suppression Frame relay DLCI loopback DPN-100 Gateway on DS1c/E1c DPN-100 Gateway over frame relay CP redundancy on Passport model 50 Token ring SRB APPN HPR/DLUr Large network routing enhancements Incremental FMIP operators
Early trials	All P1.3.9 ATM features ATM traffic management

**ATM enterprise network switch *IS HERE!***

19

### P1.3.9 and P3.2 features

Refer to notes on pages 10, 11 and 12.

#### Fax idle suppression

This feature allows very efficient carriage of fax traffic in a manner that is fax machine- and configuration-independent. This feature eliminates consumption of bandwidth in the opposite direction to fax transport. With balanced fax traffic this results in bandwidth savings on average of 50%.

#### Frame relay DLCI loopback

This feature improves a service provider network operator's ability to troubleshoot end-customer problems by allowing logical frame relay service loopbacks at the DLCI level. This gives the network operator and end-user the ability to measure round trip delay and the ability to access quality of service across the network generally.

#### DPN gateway on DS1c/E1c

This feature provides support for DPN-100 gateway on Passport's 4-port channelized FPs (DS1c and E1c) for termination of links to DPN-100 AMs, RMs or Magellan Access Switches. Currently, this feature supports up to 23 DPN gateways per channelized function processor.

The benefits of this feature include improved flexibility of bandwidth allocation and re-configuration; increased fanout and reduced port costs; more effective use of Passport capacity/performance; as well as cost-effective access to fractional/groomed leased line services.

**DPN gateway (net links) over frame relay**

This feature provides an alternative transport mechanism for network links between DPN-100 access modules and Passports using a public frame relay network, rather than on a leased or dialled physical line. Connection via frame relay may be more cost-effective than using a leased line. This feature also provides increased fan-in due to the multiplexing ability of multiple DLCIs to a single port on the public frame relay network (this further reduces the cost by minimizing the number of physical interfaces required on Passport).

As an interworking feature between DPN-100 and Passport, software to implement this feature is required on both DPN-100 and Passport modules. The DPN-100 AM or Magellan Access Switch end of the connection has to run G34 feature 'network link over frame relay'. The Passport end of the connection has to run P3.3 feature 'DPN gateway over frame relay' which includes components from within the frame relay and trunk application software packages.

**Control processor redundancy on Passport model 50**

This feature provides redundant control processor operation for Passport model 50 that is equivalent in all respects to the redundant control processor operation on Passport model 160. With the feature, Passport model 50 will have the same level of redundancy, including data backup (accounting, statistics and provisioning), switch over performance, operator commands and behavior, as the Passport model 160 when redundant control processors are installed. The only practical difference, of course, is that on Passport model 50 control processors are supported in slots 0 and 4 rather than slots 0 and 15 as on the Passport model 160.

The use of a redundant control processor on Passport model 50 will be optional and slot 4 will continue to support a functional processor.

**Token ring source route bridging (SRB)**

The Passport token ring functional processor with SRB permits routing and/or switching of Token Ring LANs via Passport interLAN switching. Token ring SRB protects investment (particularly when Netbios is present) by integrating Passport into customers' source route bridged token ring network infrastructure. It broadens network connectivity by routing and translational bridging between token ring and other Passport attached media.

**APPN HPR/DLUR**

High performance routing (HPR) was designed to become advanced peer-to-peer networking's (APPN) routing engine. HPR was designed with the contributions of Nortel, IBM, and other industry leading members of the APPN Implementors Workshop (AIW). DLUR/DLUS provides a mechanism by which subarea SNA can be transported across an APPN network, enabling SNA to APPN evolution.

With HPR and DLUR in the APPN fold, IBM-centric networks can now look at APPN as viable peer-to-peer networking alternative for mission critical networks, and as a means of extending and enhancing their investment in SNA.

Passport provides both DLUR and HPR as part of its basic APPN network node service. HPR and DLUR are add-on modules to the current APPN NN service—their benefits and competitive differentiators are inherently tied to the overall benefits and competitive differentiators of Passport APPN. Passport APPN NN also leverages DPN-100's data link routing services.

### **Large network routing enhancements**

This feature increases the Passport node ID address limit up to 4095 nodes per network to allow for network growth. This feature primarily creates the infrastructure required for future features which will change the engineering guidelines and allow larger networks to be deployed.

In general, Passport networks with multiple RID subnets will be good candidates for growing well beyond 256 nodes with this feature. Also, networks with Passports that have a small number of link groups per Passport will be good candidates.

### **Incremental FMIP operators**

This feature increases the number of permitted FMIP operator connections from the previous limit of 16 to 35. This allows Passport to better fit into the management environment which is required for large Passport and large Magellan networks.

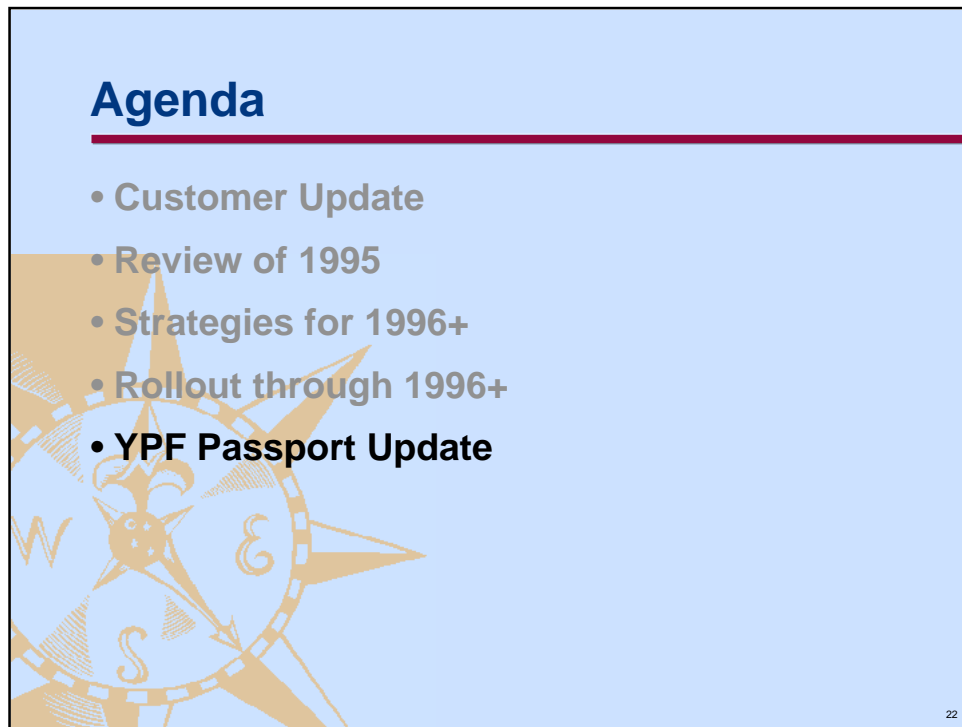
### **P1.3.9 ATM features**

Refer to notes on pages 10 and 12.

#### **ATM traffic management**

This feature provides support on Passport for usage parameter control functions (UPC) required at the public user network interface (UNI). UPC is necessary to monitor and control ATM traffic to ensure the subscribed traffic contract at time of call admission is not subsequently violated, affecting other connections. Actions of the UPC function include cell passing, cell tagging (operator option) and cell discarding. Passport UPC applies to both virtual channel and virtual path (PVC and SVC) connections. Passport UPC handles both UNI as well as network node interface (NNI) and conforms to ATM Forum UNI 3.0.

This feature also allows simultaneous traffic shaping on all ports of Passport's ATM functional processors. Traffic shaping is required when connecting to a public ATM network to prevent traffic from being discarded.



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22

The final section of the Passport Update provides a customer perspective on Passport's evolution through 1995.

**Francisco Cimmino**  
Manager, Networking and Communications - YPF

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**CONSOLIDACION GLOBAL DE SERVICIOS  
UTILIZANDO EL MAGELLAN PASSPORT DE NORTEL**

Como resolver las necesidades dinámicas de comunicaciones de una corporación utilizando el Magellan Passport



**YPF**

23

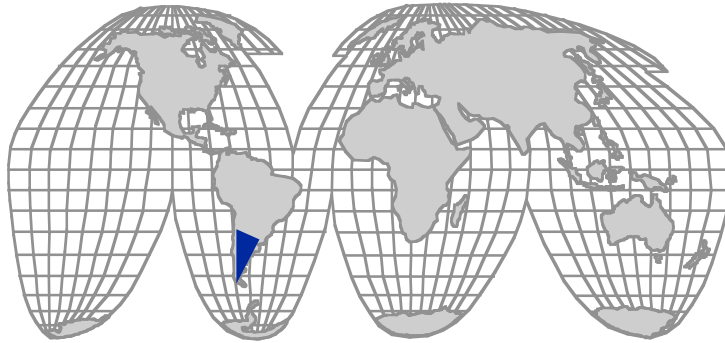
The final portion of this presentation has been prepared by Francisco Cimmino who is Manager of Networking and Communications at YPF. The collaboration between Nortel Magellan and YPF for deployment of Passport services including voice transport, frame relay switching, HDLC for X.25 and BTDS for video began in 1994, grew in 1995—and continues.

# YPF



## GLOBAL SERVICES CONSOLIDATION USING NORTEL MAGELLAN PASSPORT

Achieving business excellence through network evolution



Francisco Cimmino  
YPF S.A

Alejandro Bourg  
Ringer S.A.

Alejandro Bourg / Francisco Cimmino - March 1996

Page 1 / 19

Presentation prepared by Alejandro Bourg from Ringer and Francisco Cimmino from YPF, on March 1996 to be presented at Nortel Magellan Seminar Inform 1996, Montreal.



- YPF business
- Corporate network evolution
- Why Passport?
- Passport test network
- Passport network expansion
- Passport case study
- Conclusions





La Plata refinery



Gas Stations



Analysis



Exploration



Offshore



Oil and gas distribution



Data processing



Alejandro Bourg / Francisco Cimmino - March 1996

National Oil and Gas Company  
Privatized 1991

# 1 Company  
in Argentina

**Employees:**

- 1996: 6,000
- 1989: 52,000

**Strategic reorganization  
in business units:**

- Upstream
- Downstream
- Corporation

**Increasing sales:**

- 1994: \$4192M
- 1993: \$4190M
- 1992: \$4094M

**Facts:**

- 2740 Gas Stations
- 4 Refineries(the biggest in Argentina)
- 2 Petrochemical Plants

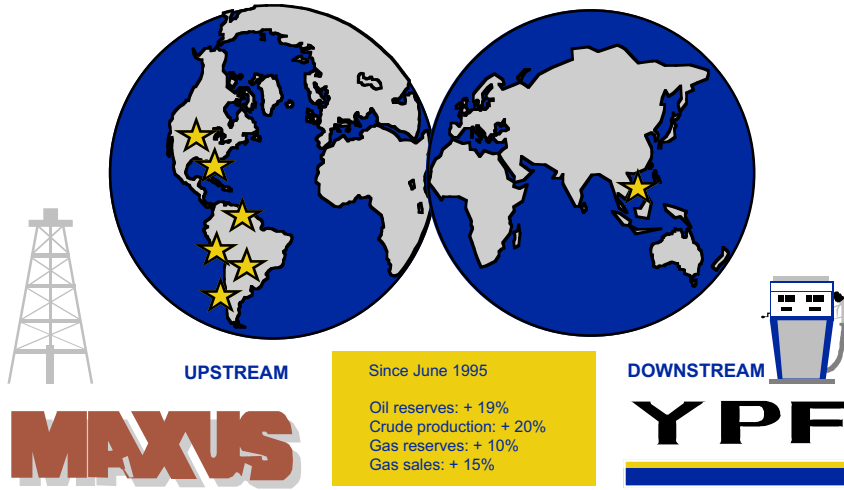
**International expansion:**

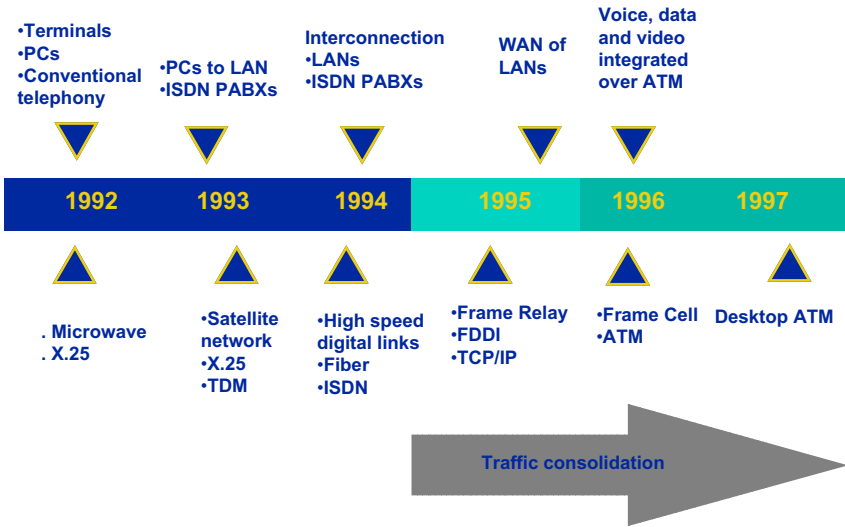
- NYSE
- Upstream: Maxus
- Downstream: YPF



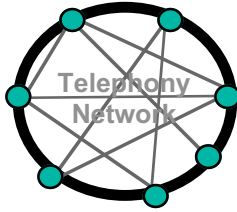
Page 4 / 19

United States - Indonesia - Bolivia - Ecuador - Venezuela - Chile

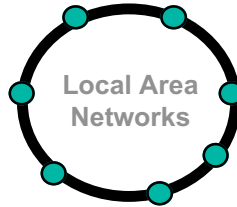
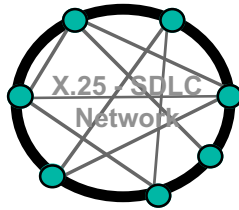




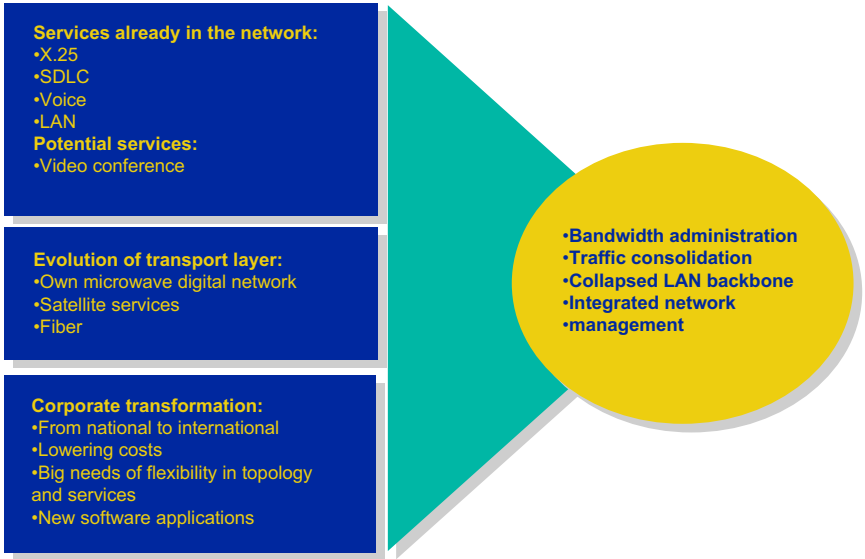
1991

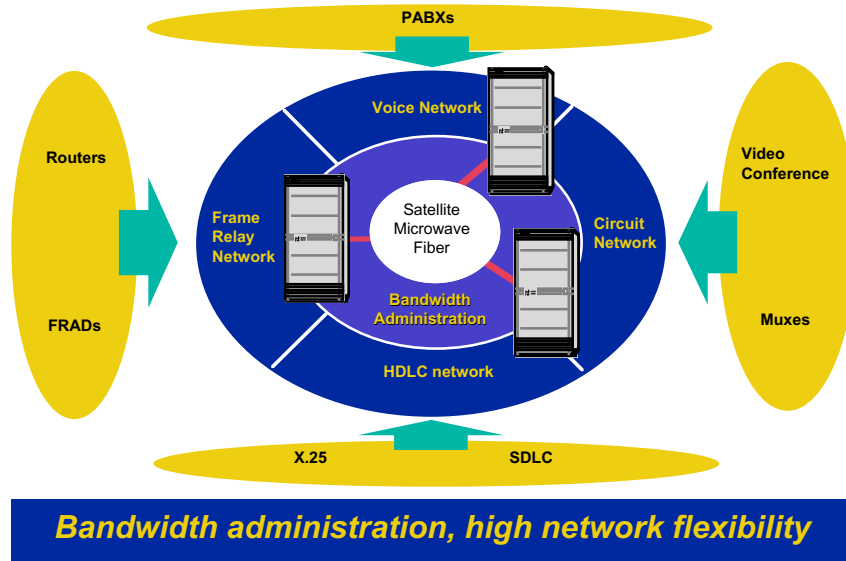


- Analog lines
- Basic network administration



***Underuse of bandwidth, low network flexibility***







**Challenge**

**Identify Technology**

**Find Partner**

**Passport**

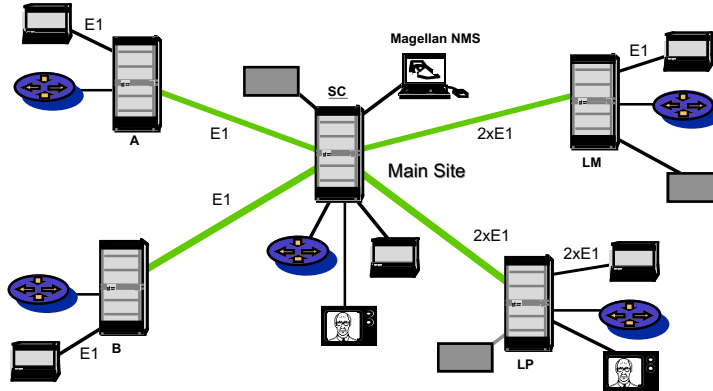
- Bandwidth administration
- Traffic consolidation
- LAN integration
- Management system
  
- High integration with existing Meridian network
- Known vendor
  
- Voice transport with compression and silence suppression
- Frame Relay
- Video conference
- HDLC transparent
- ATM
  
- Family of products from packet switching to ATM
- Technology leadership

**Nortel**

- Technology excellence
- Product marketing, engineering and sales support..
- Global engineering support: field trials.
- Letter of collaboration between Northern Telecom and YPF (Jim Long - Juan Angel Rodriguez. August 26, 1994).

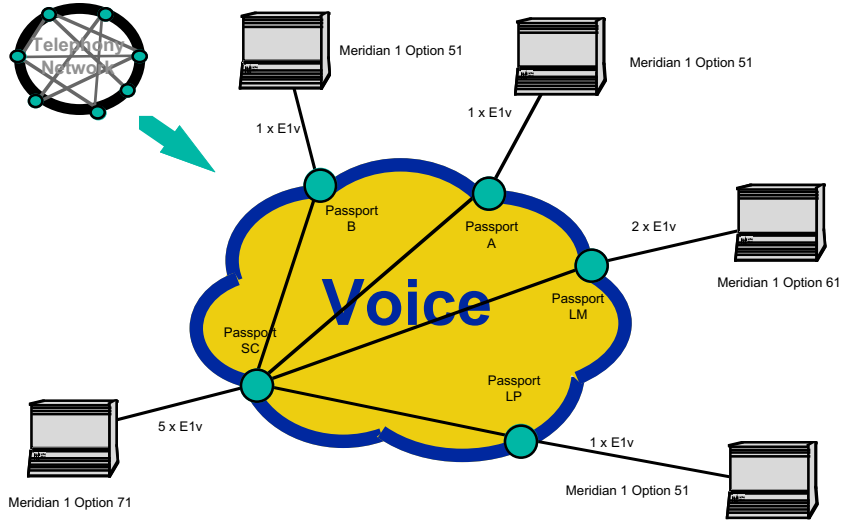
**Ringer**

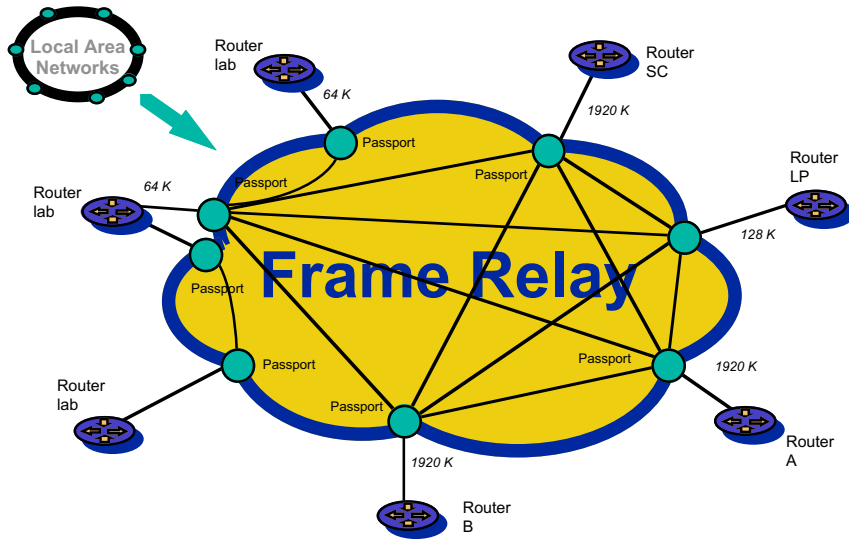
- Known provider for implementation of private ISDN network.
- Local support in Argentina for Magellan and Meridian networks.
- Engineering, installation, operation and maintenance.
- Local partner.

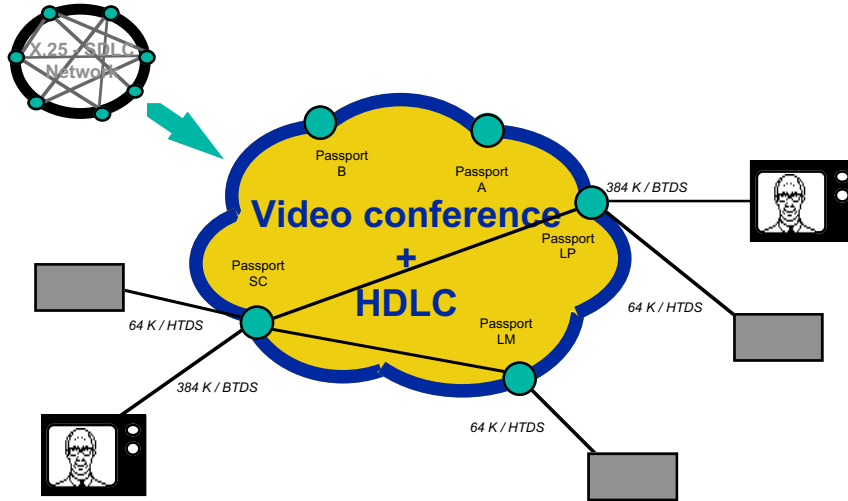


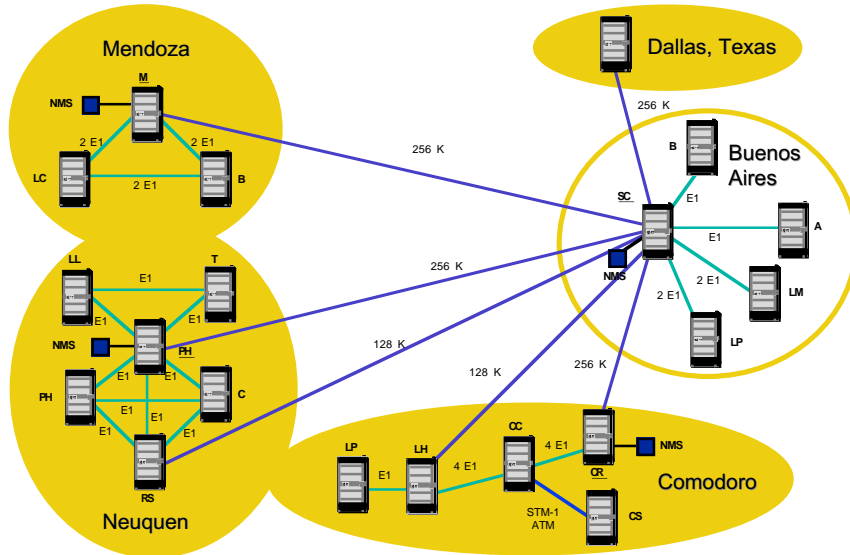
Note: test network included DPN-100 for CSRM and packet switching not shown in picture.

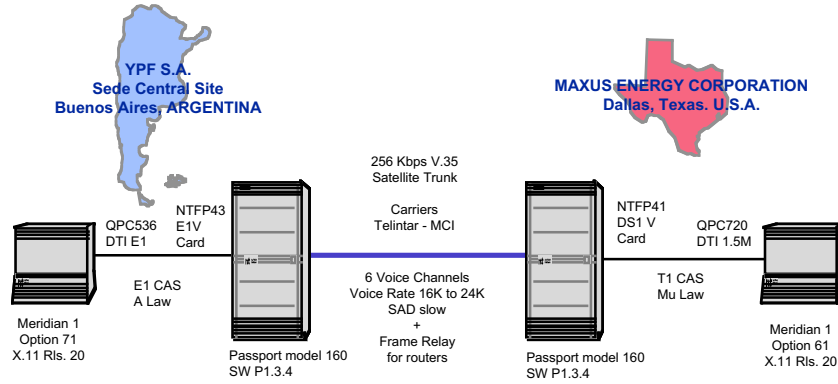
	<b>Routers: Frame Relay</b>		<b>Video: Bit Transparent</b>
	<b>PBX: Voice Transport</b>		<b>Packet Switches: HDLC Transparent</b>









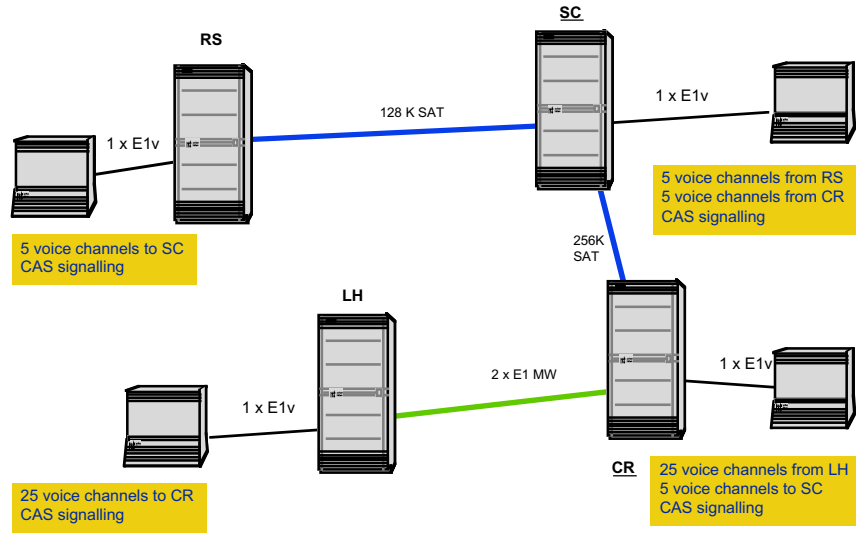


**Passport Voice Features**

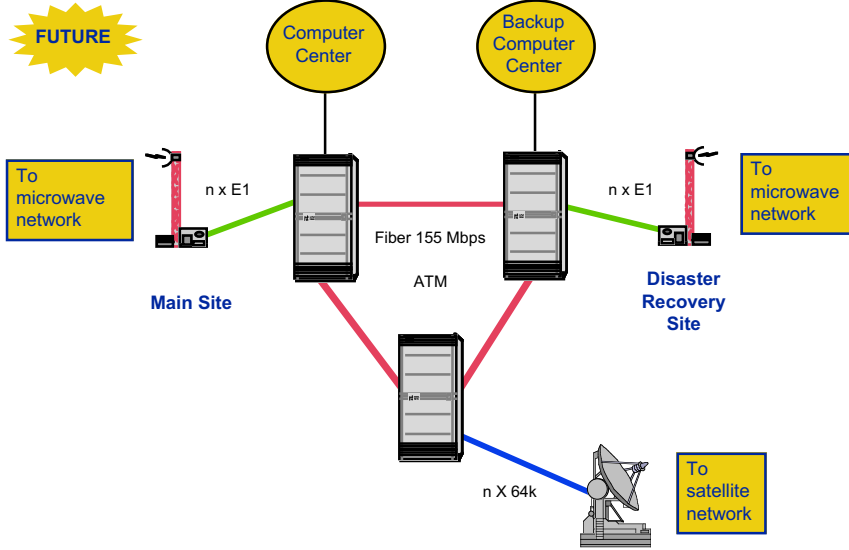
- Passport adapts A-Law to u-Law.
- Passport adapts 64 to 56 Kbps Channels.
- Passport transports CAS signalling.
- Passport translates E1 CAS to T1 ESF CAS:  
(E1 idle 1001 - DS1 idle 0000)  
(E1 sez 0001 - DS1 sez 1111)

**Customer benefits**

- Keep PBX provisioning simple at each site.
  - Keep sparing simple.
- (International with E1 American with DS1).







- We achieved planned goals
- We confirmed the strength of Passport
- We are using leading technology
- We found the way to smoothly migrate to ATM
- We generate the technological platform to make business evolve

